Accessing eGIS data

Overview	GIS 101
Exercise 1	Introduction to the ArcMap Interface
Exercise 2	Connecting to the MVN eGIS database
Exercise 3	Adding data to ArcMap directly from EGIS
Exercise 4	Adding data to ArcMap with the Data Picker
Exercise 5	The Easy Way to Create a Map

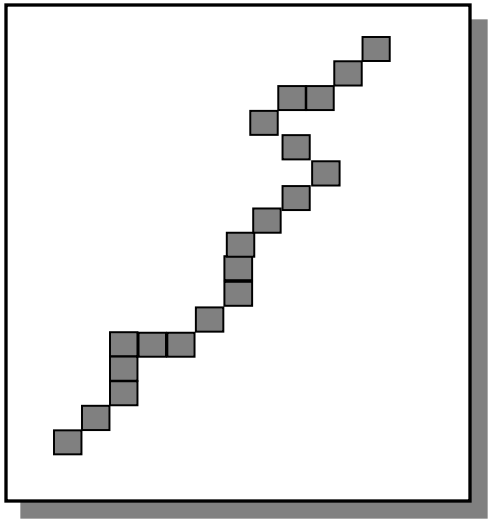
Introduction: GIS Theory

Vector Data sets

- A representation of a spatial phenomenon as a series of points, lines, or areas
- Points are referenced to a spatial coordinate system, lines to points, and areas to their lines
- Each entity has an ID, which is linked to attribute data in a separate database file

Raster Data sets

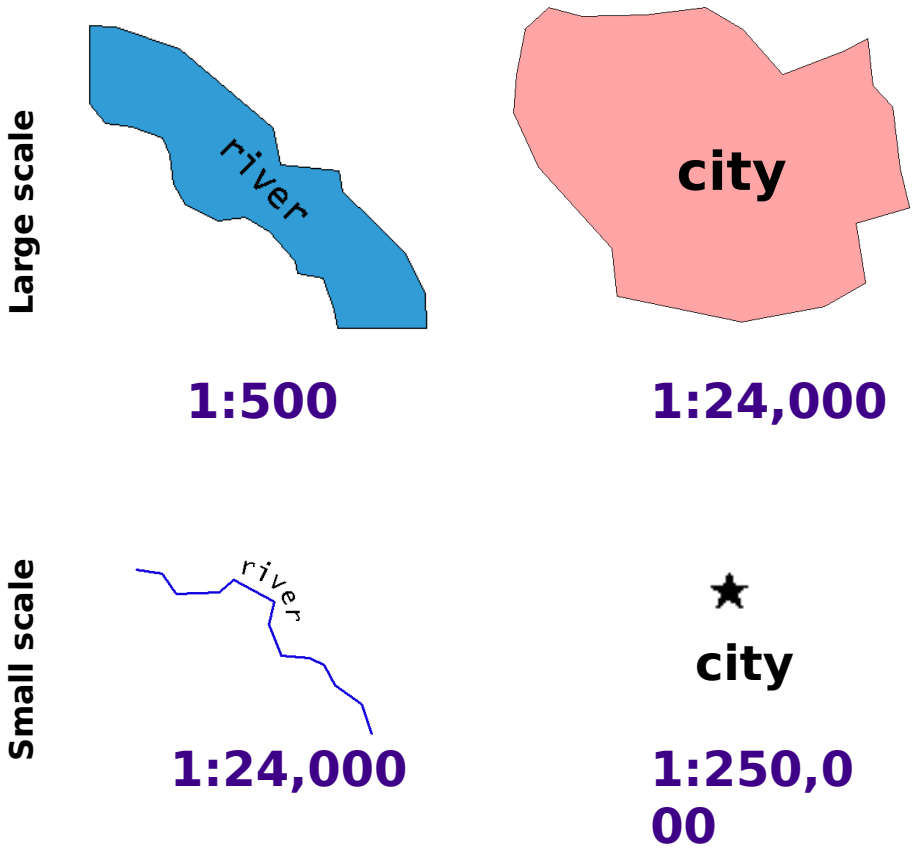
- A representation of a spatial phenomenon as a series of grid cells, or pixels
- Point phenomena are represented as single cells, lines as a series of connected cells, and areas as groups of connecting cells
- Each pixel has an associated value or array of values



Introduction: GIS Theory

Scale

- Remember, spatial data sets are only representations of real-world phenomena
- Scale determines the size and shape of features in a GIS
- At larger scales, many spatial phenomena are represented as areas
- As you decrease the scale of the map, many phenomena are represented as points or lines



Introduction: Spatial Data Formats

Spatial Data can be acquired in a variety of formats, such as MS Word documents, Adobe PDF, MS Excel, ASCII text files, ESRI shapefiles or feature classes, etc. However, when working with an enterprise GIS system, the best way to acquire spatial data is in a GIS compatible formats. Some of these formats include:

-Comma-delimited text files (ASCII text)

-Microsoft Excel Spreadsheets

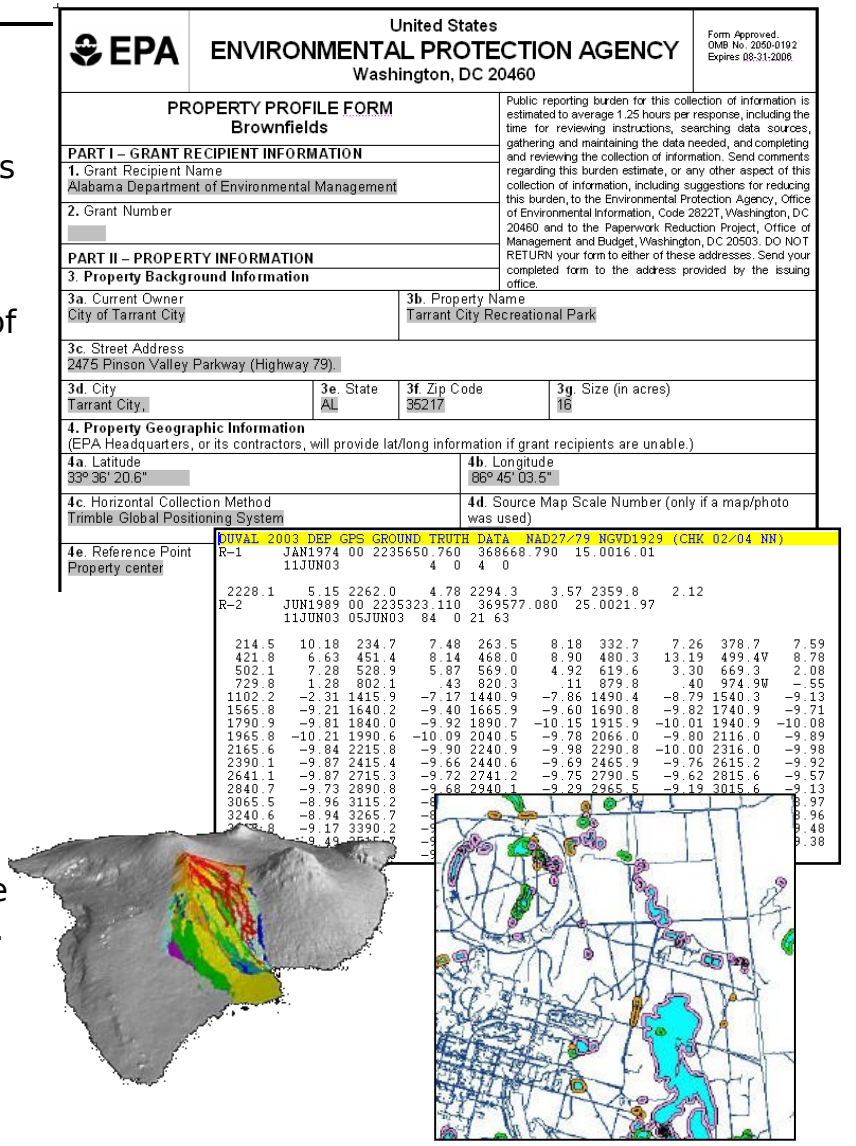
-Microsoft Access Databases

-ESRI shapefiles or geodatabase feature classes

-Raster data in .tif, .tiff, .jpg, .jp2, .img, .sid with accompanying world files.

If data is not collected in one of the above formats, it requires more data editing to transform the data into a compatible file.

The US Army Corps of Engineers has adopted the ESRI suite of products to support GIS analysis and spatial data editing. To utilize and have access to all of the tools contained eCoastal and ESRI's ArcMap on the whole, data must be compatible with the software.



EPA

United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

Form Approved.
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Expires 08-31-2006

PROPERTY PROFILE FORM
Brownfields

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PART I – GRANT RECIPIENT INFORMATION

1. Grant Recipient Name: Alabama Department of Environmental Management

2. Grant Number:

PART II – PROPERTY INFORMATION

3. Property Background Information

3a. Current Owner: City of Tarrant City

3b. Property Name: Tarrant City Recreational Park

3c. Street Address: 2475 Pinson Valley Parkway (Highway 79).

3d. City: Tarrant City,

3e. State: AL

3f. Zip Code: 35217

3g. Size (in acres): 16

4. Property Geographic Information
(EPA Headquarters, or its contractors, will provide lat/long information if grant recipients are unable.)

4a. Latitude: 33° 36' 20.6"

4b. Longitude: 86° 45' 03.5"

4c. Horizontal Collection Method: Trimble Global Positioning System

4d. Source Map Scale Number (only if a map/photo was used)

4e. Reference Point: Property center

DUVAL 2003 DEP GPS GROUND TRUTH DATA NAD27/79 NGVD1929 (CHK 02/04 NN)
R-1 JAN1974 00 2235650.760 368668.790 15.0016.01
11JUN03 4 0 4 0

2228.1 5.15 2262.0 4.78 2294.3 3.57 2359.8 2.12
R-2 JUN1989 00 2235323.110 369577.080 25.0021.97
11JUN03 05JUN03 84 0 21 63

214.5 10.18 234.7 7.48 263.5 8.18 332.7 7.26 378.7 7.59
421.8 6.63 451.4 8.14 468.0 8.90 480.3 13.19 499.4W 8.78
502.1 7.28 528.9 5.87 569.0 4.92 619.6 3.30 669.3 2.08
729.8 1.28 802.1 .43 820.3 .11 879.8 .40 974.9W -.55
1102.2 -2.31 1415.9 -7.17 1440.9 -7.86 1490.4 -8.79 1540.3 -9.13
1565.8 -9.21 1640.2 -9.40 1665.9 -9.60 1690.8 -9.82 1740.9 -9.71
1790.9 -9.81 1840.0 -9.92 1890.7 -10.15 1915.9 -10.01 1940.9 -10.08
1965.8 -10.21 1990.6 -10.09 2040.5 -9.78 2066.0 -9.80 2116.0 -9.89
2165.6 -9.84 2215.8 -9.90 2240.9 -9.98 2290.8 -10.00 2316.0 -9.98
2390.1 -9.87 2415.4 -9.66 2440.6 -9.69 2465.9 -9.76 2615.2 -9.92
2641.1 -9.87 2715.3 -9.72 2741.2 -9.75 2790.5 -9.62 2815.6 -9.57
2840.7 -9.73 2890.8 -9.68 2940.1 -9.29 2965.5 -9.19 3015.6 -9.13
3065.5 -8.96 3115.2 -8
3240.6 -8.94 3265.7 -8
-9.17 3390.2 -
-9.49 -

Introduction: Data Storage

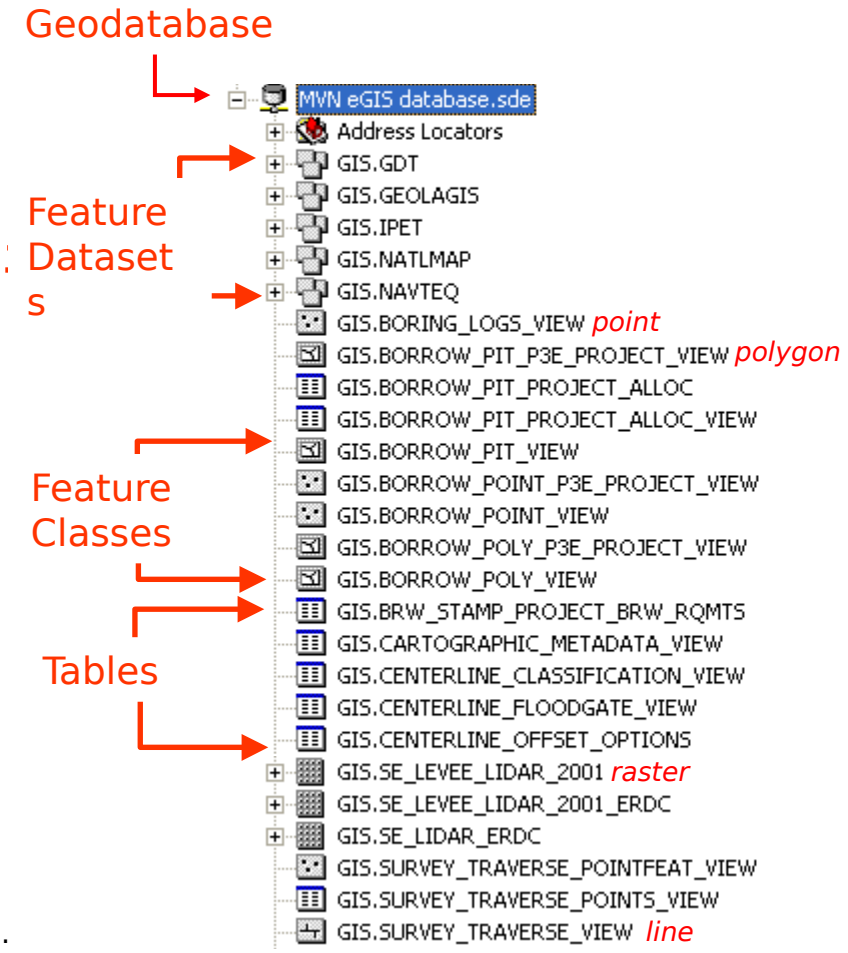
The Geodatabase

Enterprise GIS is defined as the *integration of geospatial technology infrastructure to deliver spatial information products, services and standard datasets to all business elements and processes of the organization*.

The concept of enterprise GIS (eGIS) is taking a complete organizational approach to sharing, using, and managing spatial information.

The geodatabase is the foundation for an eGIS. It is a proprietary (ESRI/ArcGIS) storage format that represents geographic features and attributes as objects and is hosted inside a relational database management system. It is organized into a variety of feature datasets and sub-divided into feature classes. The icon that prefaces the data record provides a preview into the type for the data– point, line, polygon, or raster.

The New Orleans District uses an ORACLE platform to support the District's enterprise GIS program. Data contained in this geodatabase can be accessed using ESRI's ArcCatalog or ArcMap software. A license is required for access to the ESRI software. To obtain the license connectivity information, please contact the MVN eGIS team.



Introduction: Data Types

Feature Class

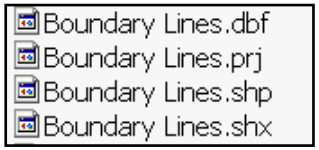
A collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference. Feature classes can stand alone within a geodatabase or be contained within shapefiles, coverages, or other feature datasets. Feature classes allow homogeneous features to be grouped into a single unit for data storage purposes. For example, highways, primary roads, and secondary roads can be grouped into a line feature class named "roads".

Shapefile

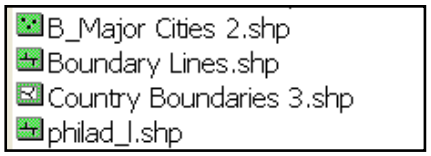
A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a **set of related files and contains one feature class**.

Layer Files

In ArcGIS, a **reference to a data source**, such as a coverage, geodatabase feature class, raster, and so on, that defines how the data should be displayed on a map (**legends & labeling parameters**). Layers can also define additional properties, such as which features from the data source are included. Layers can be stored in map documents (.mxd) or saved individually as layer files (.lyr). Layers are conceptually similar to themes in ArcView 3.x.



In Windows Explorer, you can see all of the file types that make up the entire shapefile.



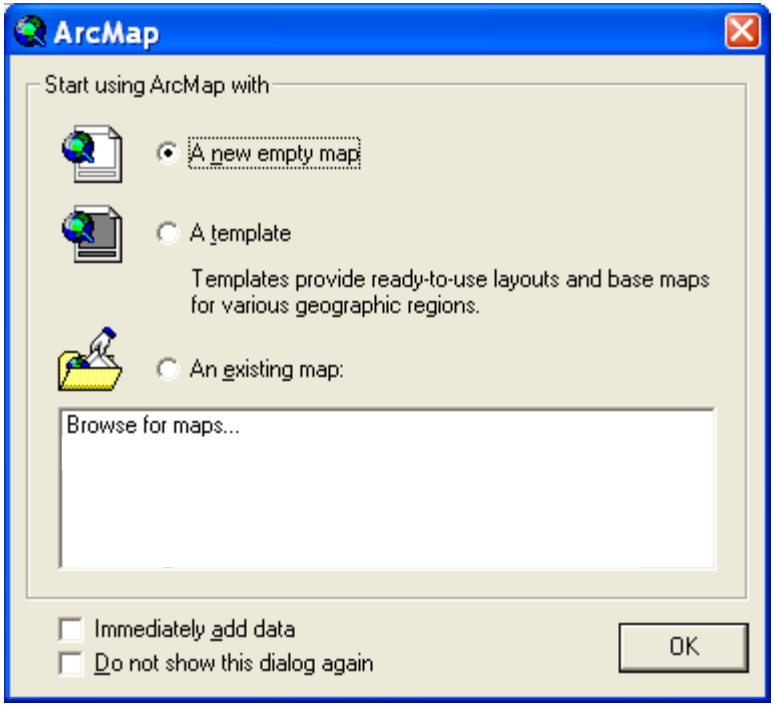
In ArcCatalog or ArcMap, shapefiles are displayed only as one file. Notice the various green icons to denote points, lines, polygons. Geodatabase feature classes are displayed the same way, except without the .shp extension.

In ArcCatalog or ArcMap, layer files are displayed only as one file. Notice the various yellow diamond icons to denote points, lines, polygons. Remember, layer files only store a reference to the source data.

Exercise 1: Introduction to the ArcMap Interface

1. Open a new empty map in ArcMap
   - ☐ Open the ArcMap application.
   - ☐ Start → Programs → ArcGIS → ArcMap
   - ☐ Select the option to start ArcMap using "**a new empty map**".
   - ☐ Click **OK**.

2. Using the **page** as a guide, identify the Title Bar, Menu Bar, Standard Toolbar, Table of Contents, Tools Toolbar, Status Bar, Draw Tools, and Display Area in your mapping display.



Exercise 1: Introduction to the ArcMap Interface

Title Bar

Menu Bar

Standard Toolbar

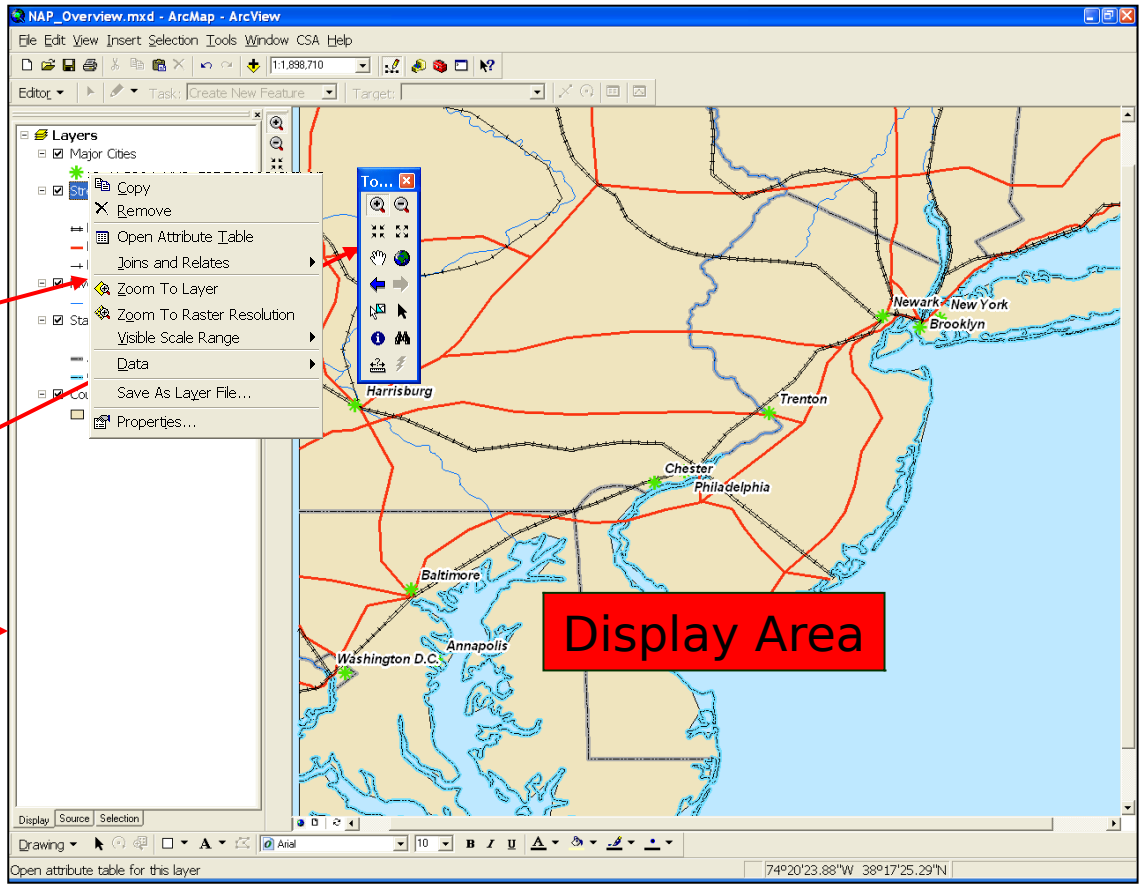
Context Menu

Tools Toolbar (dockable)

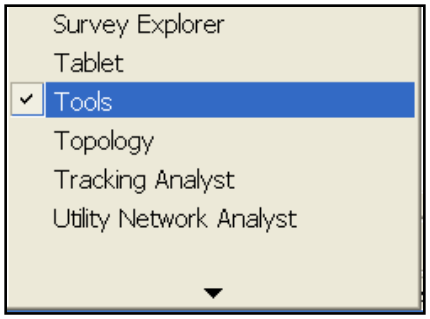
Table of Contents (dockable)

Draw Toolbar

Status Bar

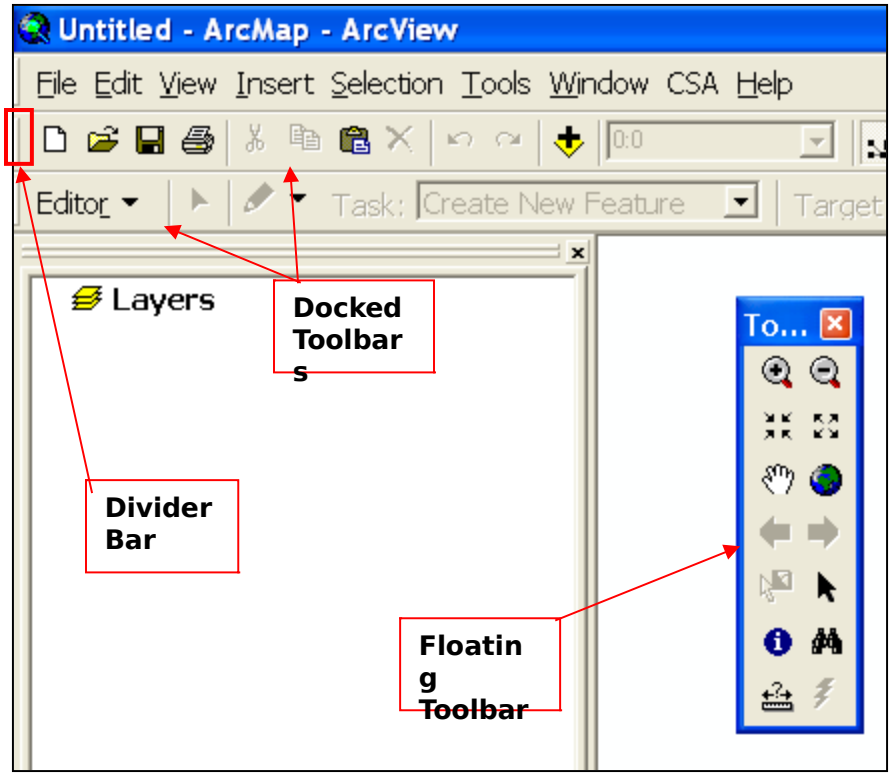


Exercise 1: Introduction to the ArcMap Interface



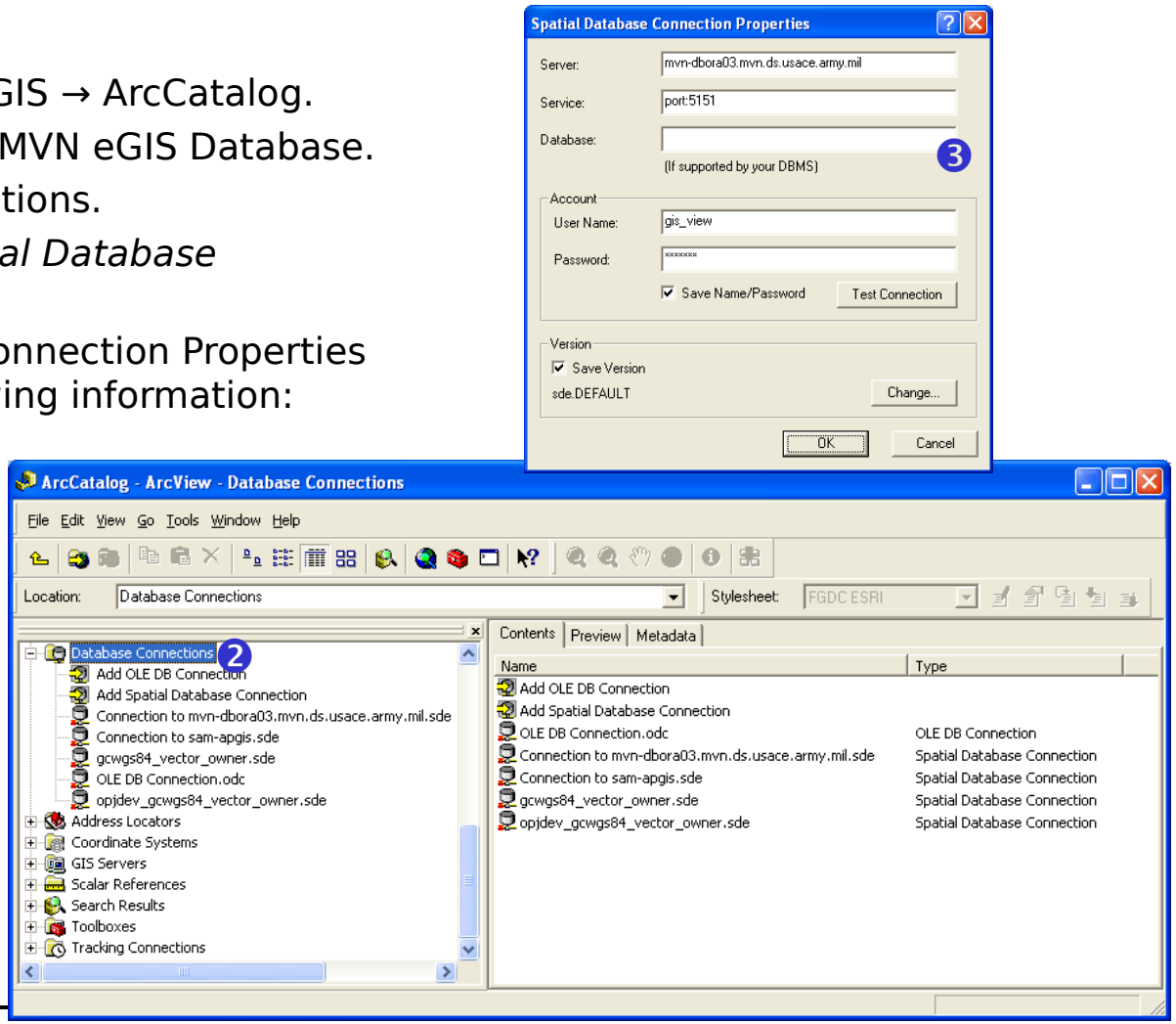
3. Toolbars, such as the **Tools**, **Standard**, and **Draw** can be toggled on and off. To **toggle any toolbar**:
   - ☐ Right-click on any toolbar. This will pop up a context menu of all of the available toolbars. To turn on a toolbar, simply click on the desired toolbar. To turn off a toolbar, locate the toolbar with a checkmark in front of the name. This denotes that the toolbar is turned on. To turn it off, click on the toolbar name.
   - ☐ For this lesson, first turn off the **Tools** toolbar. Notice the toolbar disappears from the ArcMap interface.
   - ☐ Next, toggle the Tools toolbar back on.

4. All menus and toolbars in ArcMap can be docked wherever the user desired. Toolbars can be moved by clicking on the **divider bar** at the beginning of the toolbar. While keeping the mouse button depressed, you can drag the toolbar to any location on the screen. Toolbars can remaining floating, or can be docked against an existing toolbar. To dock, drag the floating toolbar adjacent to a docked toolbar. An outline of the toolbar will appear, when this is visible, release the mouse button. This will dock the toolbar.
   - ☐ Dock and undock the **Tools** toolbar.



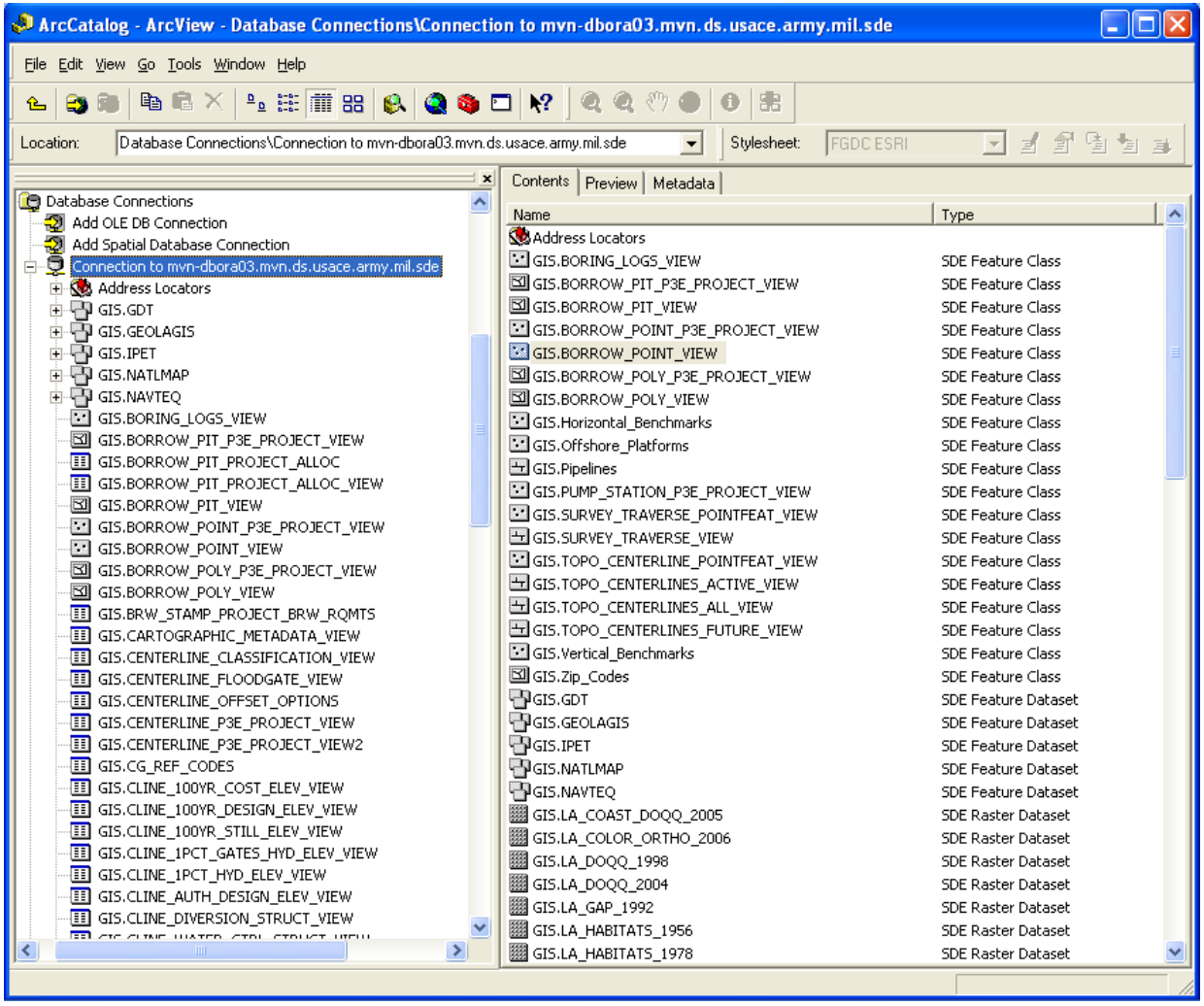
Exercise 2: Connecting to the MVN eGIS database

1. Start ArcCatalog:
   Start → Programs → ArcGIS → ArcCatalog.
2. Make a connection to the MVN eGIS Database.
3. Click on Database Connections.
4. Double-Click on *Add Spatial Database Connection*.
5. In the Spatial Database Connection Properties window, type in the following information:
   - Server: 155.76.128.146
   - Service: port:5151
   - Database: <blank>
   - User Name: gis_view
   - Password: im5d6ta
6. Click Test Connection.
7. Click OK.



Exercise 2: Connecting to the MVN eGIS database

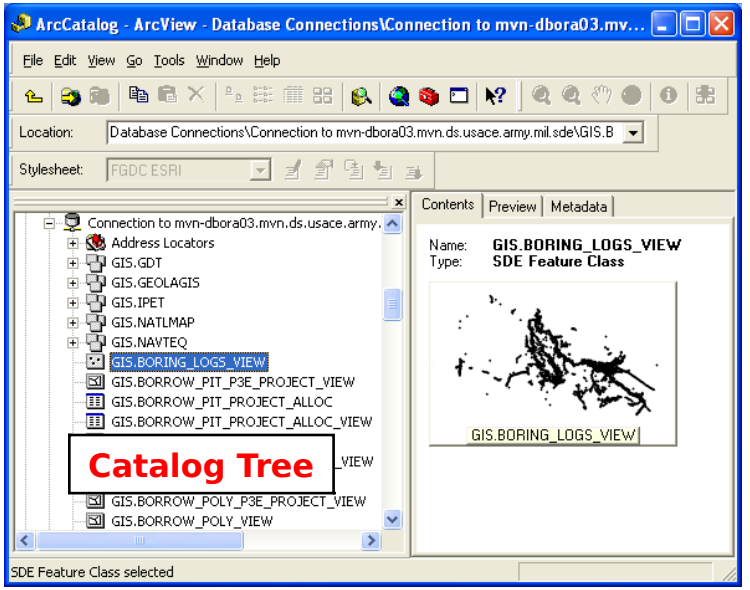
Now that you are connected to the MVN eGIS database, click the "+" sign to expand the directory to view the available data files.

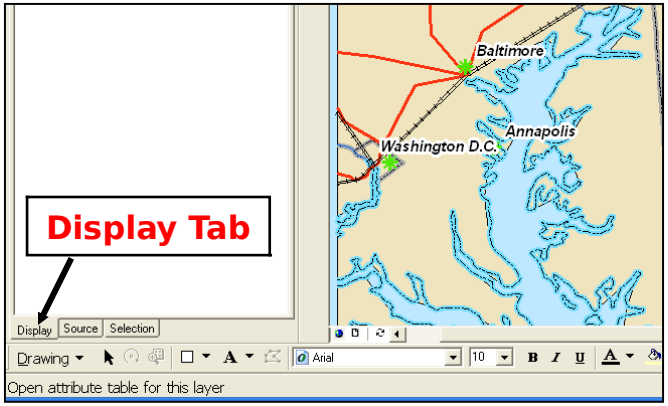


Exercise 3: Adding data to ArcMap

Adding Data from the eGIS database in ArcCatalog

1. Open ArcCatalog and ArcMap and arrange the windows so that you can see both on the screen.
2. In the Catalog Tree, navigate to the layer you want to add to the map.
   - ❑ Browse to "Connection to 155.76.128.146.sde"
   - ❑ Using the + and – signs, expand or collapse directories or feature datasets.
3. Click and drag the layer you want from ArcCatalog.
   - ❑ Select a few layers (use the Shift key to select multiple layers) in the contents pane and drag them into ArcMap
4. Drop the layer over the *map display* or *table of contents* in ArcMap. The data layer will be drawn in the active view.
   - ❑ If 'dropping' the layer into the table of contents, ensure the "Display" tab is active.



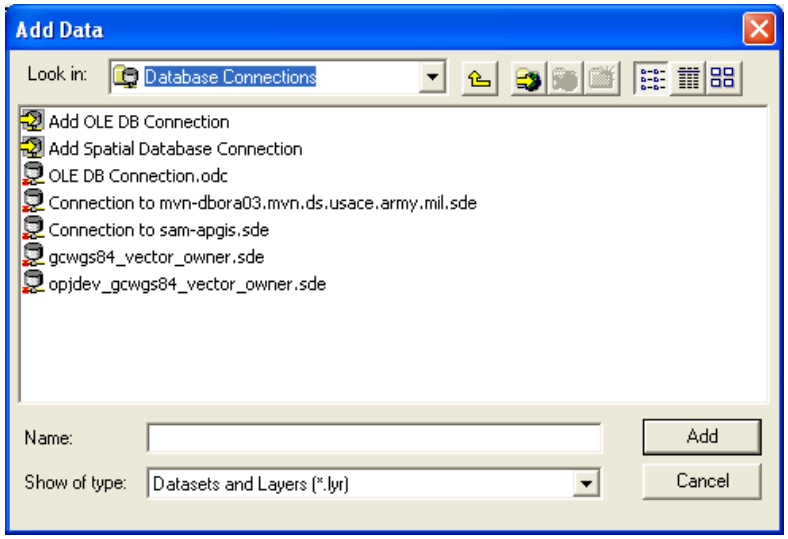


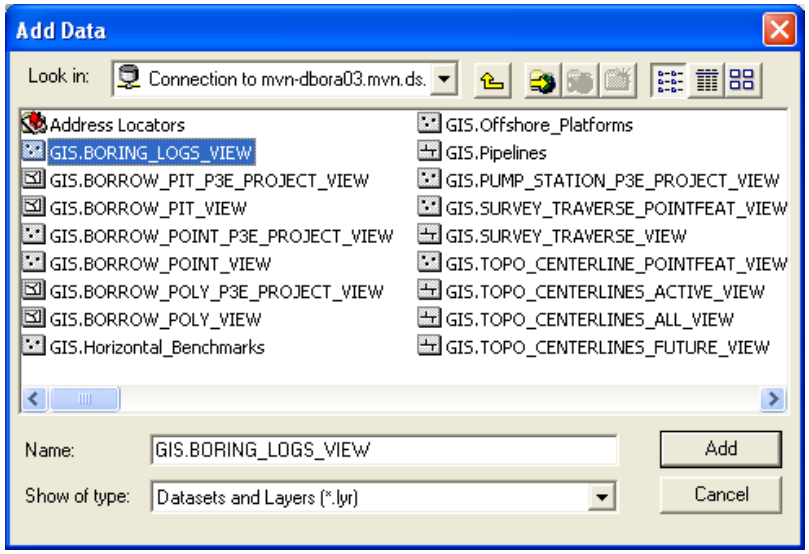
Exercise 3: Adding data to ArcMap

Adding a layer using the Add Data button

1. Start ArcMap:

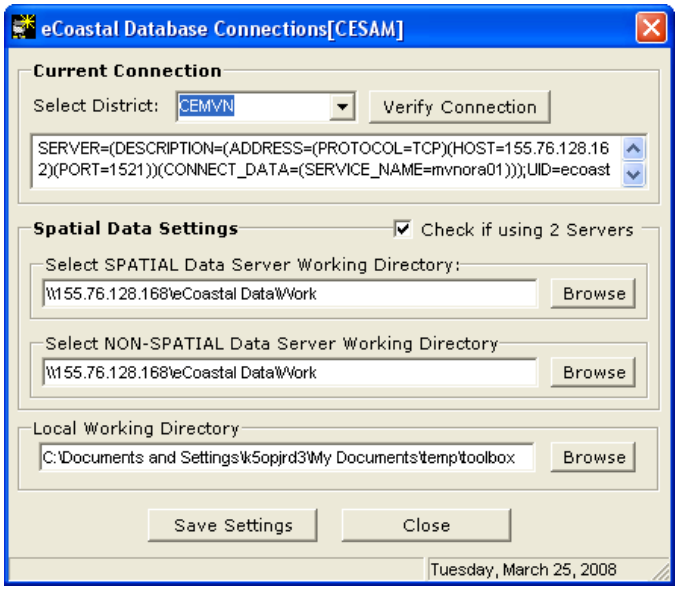
   Start → Programs → ArcGIS → ArcMap.
2. Open a new or existing file that you want to add data to.
3. Click the Add Data button.
4. In the Add Data window, click the **Look in:** dropdown arrow and navigate to **Database Connections**.
5. Double-Click **Connection to 155.76.128.146.sde** and click Add.
6. Browse through the available datasets and click to select (Shift or Ctrl to select multiple) the desired feature class.
7. Click Add.





Exercise 4: Adding data to ArcMap with the Data Picker

The Data Viewer toolbar contains a number of tools that can be use in your ArcMap session. These tools are designed to assist you with common functions, like loading data, building a map, or rearranging the items in your table of contents. Our first step is to connect to the EGIS database in MVN.

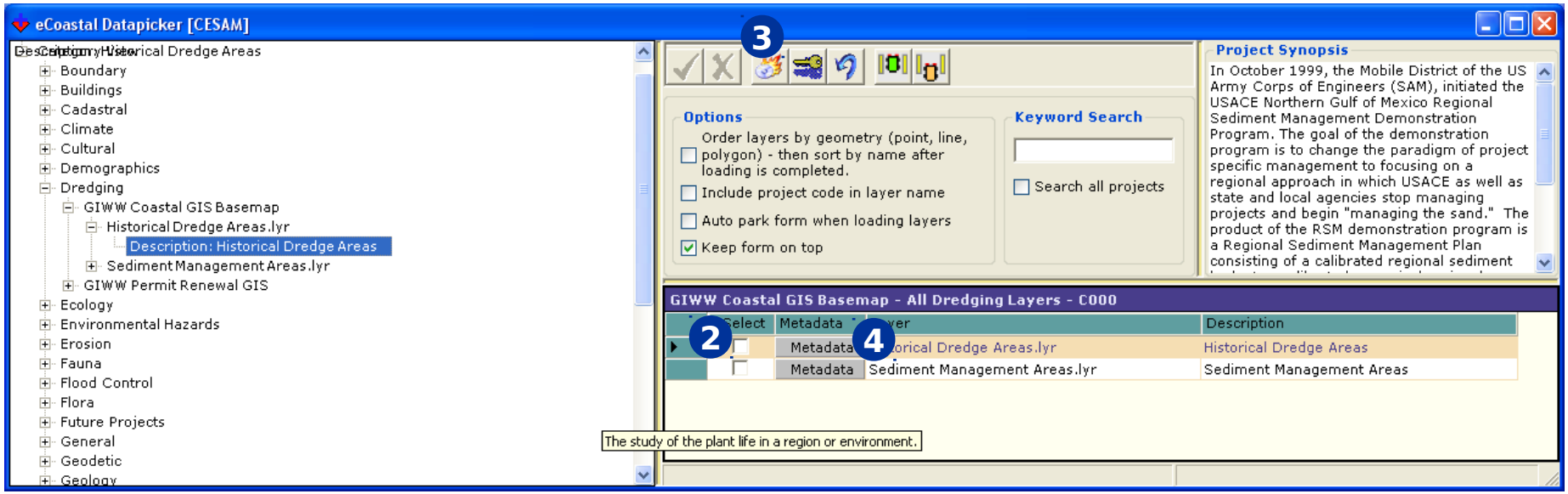


1. Click on the **Database Connection** tool on the toolbar. This tool allows you to connect to any participating District's enterprise GIS database. For this lesson, we will connect to the **CEMVN** District. Click on the **Verify Connection** button, then **Save Settings**.

2. Click on the **Data Picker** tool. This button will open a form that reads a reference to a listing of data contained in the EGIS database, or published links to other agency's data. This information is provided in *common names*, so it is easy to search and locate desired datasets.

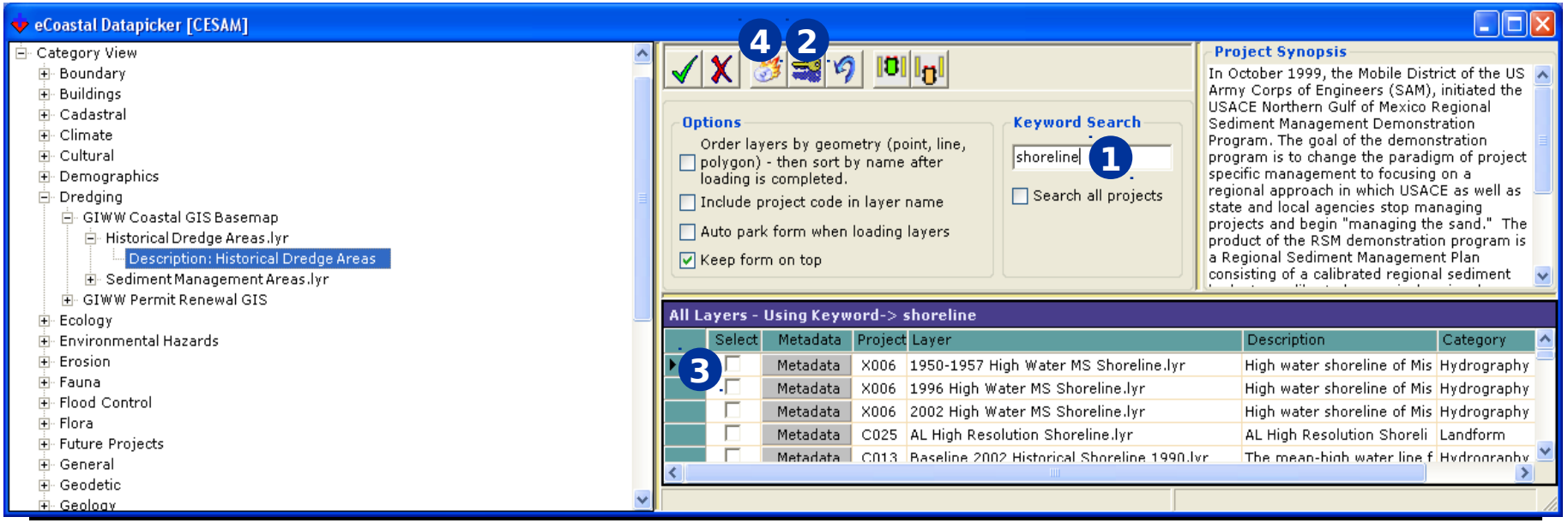
Exercise 4: Adding data to ArcMap with the Data Picker

1. In the left pane, you can browse published datasets by *Project Name* or *Category*.
2. To load data into your ArcMap session, first click the **checkbox** in front of desired layer(s).
3. Then click the **Load Data** button.
4. If you would like to see additional information about the selected layer, click the **Metadata** button next to the layer name.


eCoastal Datapicker [CESAM]
Description: Historical Dredge Areas
Boundary
Buildings
Cadastral
Climate
Cultural
Demographics
Dredging
GIWW Coastal GIS Basemap
Historical Dredge Areas.lyr
Description: Historical Dredge Areas
Sediment Management Areas.lyr
GIWW Permit Renewal GIS
Ecology
Environmental Hazards
Erosion
Fauna
Flood Control
Flora
Future Projects
General
Geodetic
Geology
3
Options
Order layers by geometry (point, line, polygon) - then sort by name after loading is completed.
Include project code in layer name
Auto park form when loading layers
Keep form on top
Keyword Search
Search all projects
Project Synopsis
In October 1999, the Mobile District of the US Army Corps of Engineers (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment
GIWW Coastal GIS Basemap - All Dredging Layers - C000
Select
Metadata
Description
2
4
Metadata
orical Dredge Areas.lyr
Historical Dredge Areas
Metadata
Sediment Management Areas.lyr
Sediment Management Areas
The study of the plant life in a region or environment.

Exercise 4: Adding data to ArcMap with the Data Picker

1. If you are not sure what Project of Category your desired datasets is matched to, enter a search word in the **Keyword Search** textbox.
2. Click the **Keyword Search button.**
3. To load data into your ArcMap session, first click the **checkbox** in front of desired layer(s).
4. Then click the **Load Data** button.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Category View
Boundary
Buildings
Cadastral
Climate
Cultural
Demographics
Dredging
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Historical Dredge Areas.lyr
Description: Historical Dredge Areas
Sediment Management Areas.lyr
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Order layers by geometry (point, line, polygon) - then sort by name after loading is completed.
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shoreline
1
Search all projects
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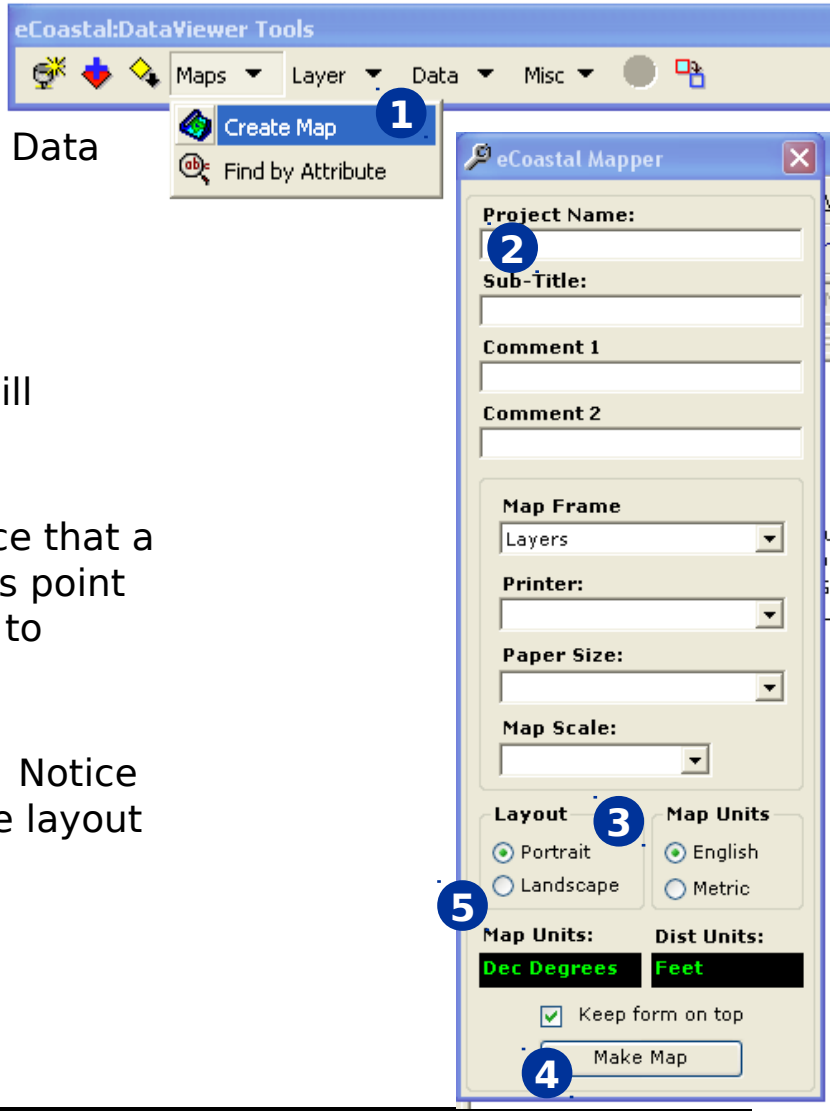
All Layers - Using Keyword-> shoreline
Select
Metadata
Project
Layer
Description
Category
3
Metadata X006 1950-1957 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata X006 1996 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata X006 2002 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata C025 AL High Resolution Shoreline.lyr AL High Resolution Shoreli Landform
Metadata C013 Baseline 2002 Historical Shoreline 1990.lyr The mean-high water line f Hydrography

Exercise 5: The Easy Way to Create a Map



1. Make a quick layout of the map display. From the Data Viewer Toolbar, select **Maps → Create Map**.

2. Enter **eCoastal Training** as the Project Name.

3. Select a **Portrait Map Orientation**. This tool will automatically build a map that is printer-ready.

4. Click the **Make Map** button when finished. Notice that a Layout has automatically been generated. At this point you can change any of the layout elements prior to sending the layout to the printer.

5. Change the Map Orientation size to **Landscape**. Notice the maps automatically reformats and resizes the layout controls.

6. Click the form.